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**An Integrated Framework for Export Competitiveness:  
Evidence from the Global Alcoholic Beverages Industry**

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## **Abstract**

Participation in international trade is a key indicator of an industry's competitiveness. This study presents a framework for measuring the export competitiveness of an industry across countries that takes into account (a) industry specialization, measured by the revealed comparative advantage, (b) industry export growth rate, and (c) relative industry size. The framework is applied to the alcoholic beverages industry using data from the top 30 exporters of alcoholic beverages over a five year period (2001-2005). The results indicate that the alcohol beverage export market is dynamic and changing, and that export competitiveness varies by country according to the sub-sector of the industry. A discussion of the application of the framework across industries and countries follows.

## INTRODUCTION

One of the key indicators of the extent of export competitiveness of an industry is the degree of its participation in international trade. According to data published by the World Trade Organization (WTO, 2006), the volume of world merchandise trade in 2005 grew by 8 per cent to about 11.8 trillion USD, compared to a world gross domestic product growth of 3.5 percent. In the past two decades, world trade has grown faster than world GDP, suggesting that the international economy is a source of dynamism and opportunity.

The theory of comparative advantage, which arises from differences in technology and factor proportions, was developed by some economists almost 200 years ago to explain the basis for the pattern and composition of international trade (Heckscher, 1949; Marshall, 1890; Ohlin, 1933; Ricardo, 1871; Smith, 1776). It underscores the importance of specialization and trade in enhancing productivity and consumer well-being. This point was first illustrated by Adam Smith (1776), who argued that under free unregulated trade, each nation should specialize in the production of the goods that it can make most efficiently and import those goods in which it has a comparative disadvantage. In order to sustain industry export competitiveness, countries, and companies residing within them must understand the revealed comparative advantage of specific industries. How to model export competitiveness of industries, however, remains an unresolved issue, particularly when comparing a single industry across multiple countries. In this study, an attempt is made to do just that: compare the export competitiveness of a single industry (alcoholic beverages) across multiple countries, using three measures: the revealed comparative

advantage via the Balassa index (described in more detail later), the industry growth rate, and relative share of the export market.

Competitiveness has been assessed and studied at various levels: at the country level (Murtha & Lenway, 1994; Jones, 1994; Enright et al., 1999), regional level (Uysal, Chen & Williams, 2000), industry level (Roth & Morrison, 1990; Mitchell, Shaver & Yeung, 1993; Contractor, Hsu & Kundu, 2005; Alon & Fetscherin, 2007), and the network/group level (Peng, Lee & Tan, 2001). Country level assessments are provided by the World Competitiveness Index, the World Economic Forum, and the Institute of Management Development (Eckhard, 2006), but are oftentimes too general to be applied to a single industry (Krugman, 1994). In contrast, individual company cases and studies are too specific and may not be applicable to a whole industry (Peng, et al., 2001). Analyzing international trade at the industry level, however, provides greater detail and a better understanding of the competitive dynamics of an industry than at the country level for several reasons: (1) examining the degree of specialization for a given industry can identify the comparative (dis)advantage of a national industry; (2) industry-specific analysis permits international comparisons of an industry's degree of specialization and rate of growth, and (3) an industry-level analysis enables comparisons with other industries in the same country.

In this paper, a focus on the industry level is used, to provide a unit of analysis applicable to multiple related firms across countries. The industry is the location where firms win or lose a competitive advantage and it is the industry level that permits an examination of the dynamic nature of industrial evolution and reformation in the global business environment (Passemar & Kleiner, 2000). That industry impacts the

competitiveness of both firms and countries has been shown previously (Chang & Singh, 2000; Mitchell, Shaver & Yeung, 1992), yet there is still a general paucity of research in this area, with previous studies consisting mostly of case studies, examinations of single domestic industries, and the use of subjective measures (Makhija, Kim & Williamson, 1997). Nevertheless, some studies have attempted to examine industry competitiveness through the use of objective measures: Coy (2006) suggested examining the relative comparative advantage of an industry by examining its export makeup, Mandeng (1991) examined the size or increase of export market share, and others have used export performance (Balassa 1965; Balassa & Bauwens, 1987), price ratios (Durand & Giorno, 1987), cost competitiveness (Siggel & Cockburn, 1995), and multi-dimensional indicators (Buckley et al., 1992; Porter, 1990).

This study focuses on the alcoholic beverage industry and compares export competitiveness across various countries. The alcoholic beverage industry is suitable for such a study of export competitiveness because its products are available and traded worldwide, with sales level exceeding USD 180 billion in 2006 and exports accounting for about USD 60 billion. Beer alone accounted for more than half of the alcoholic beverage revenues, with about USD 92 billion in 2006 (Standard & Poor's, 2007). Given the internationalization of this industry and its limited product diversification, it provides a suitable testing ground for examining a new framework of global industry export competitiveness.

The objectives of this study are to develop a multi-dimensional framework for measuring and analyzing industry export competitiveness, and to apply this framework to the alcoholic beverage industry. The framework allows a systematic measurement of

export competitiveness and an inter-country comparison of a single industry and/or sub-sectors of an industry. Due to the availability of time series data for this industry, the framework can assess not only past trends but also the present export competitiveness of the alcoholic beverage industry of various countries. This type of analysis allows researchers to make inferences about the future export competitiveness of countries in a given industry. This framework also has the potential to help policymakers, government officials, industry associations, and company executives assess international export competitiveness in various sub-sectors of an industry.

The remainder of this article is structured as follows: in the next section, three variables for measuring the export competitiveness of industries is presented: industry specialization, which is a proxy for the degree of industry export competitiveness; industry growth rate; and the relative size of the national industry. In the subsequent section, a 2x2 matrix that uses these three variables to create four categories of export competitiveness is presented. Finally, to illustrate the applicability and usefulness of the framework, the framework is applied to the alcoholic beverage industry and its sub-sectors and discuss the differences in export competitiveness across countries. The analyses utilize data from the United Nations Conference on Trade and Development (UNCTAD) and the World Trade Organization (WTO) for the years 2001-2005, which allow analysis over time, across countries and at different levels of aggregation.

## **MEASURING INDUSTRY EXPORT COMPETITIVENESS**

The industry export competitiveness model uses three key variables: industry specialization, industry growth rate, and industry relative size. A detailed description of the analytical variables follows.

### **Industry Specialization (IS)**

The concept of comparative advantage has been widely accepted as one of the foundations for international trade. A country has a pattern of specialization that is determined by what goods it exports and the volume of each good it exports, both of which change over time (Hoskisson & Yiu, 2003; Kelleher, 2003; Vernon, 1966). Krugman (1994) argues that international trade is not a zero sum game and that the rise or fall of particular industries and nations reflects changing factor endowments and the need to shift to new areas of competitive advantage. When a nation enjoys a comparative advantage in a particular industry, it is natural that firms make investments in order to profit from this advantage, resulting in a relatively high degree of specialization within that industry (Dunning, 1993). A commonly used measure of industry specialization, based on export data, is revealed comparative advantage, often referred to as the Balassa Index (Balassa, 1965). For example, Richardson and Zhang (1999) used the Balassa Index for the U.S. to analyze the variations in U.S. patterns of trade across time, sectors and regions. They found that the patterns differed by region and over time and also for different levels of aggregation of the export data.

Since industry specialization can be viewed as a proxy for comparative advantage, it is used here to assess one dimension of export competitiveness. Underlying the Balassa Index (BI) is the notion that the direction of trade flows reveals a country's specialization



patterns and hence its revealed comparative advantage, though not the source of this advantage. The *BI* is calculated as the ratio of the share of a given industry in a country's exports to the share of the same industry in that country's total exports. The Balassa Index does not differentiate among the destinations of exports, whether they are regional or international. If it is assumed that the world economy comprises  $N$  countries and  $m$  industries, then country  $i$  exports for industry  $j$  are  $x_{ij}$  and the total exports of country  $i$  are given by  $X_i = \sum_{j=1}^m x_{ij}$ . Total world exports of industry  $j$  amount to  $X_j = \sum_{i=1}^N x_{ij}$  while total world exports can be seen either as the sum of all industries or as the sum of all countries, i.e.  $X = \sum_{j=1}^m X_j = \sum_{i=1}^N X_i$ . To evaluate the revealed comparative advantage of country  $i$  in the sector or industry  $j$ , Balassa (1965) suggested the following index:

$$B_{ij} = \frac{\frac{x_{ij}}{X_j}}{\frac{X_i}{X}} \quad \text{country } i = 1, 2, \dots, N; \text{ product } j = 1, 2, \dots, m$$

If the market share of country  $i$  in industry  $j$  is higher than its total market share, i.e. if  $\left(\frac{x_{ij}}{X_j}\right) > \left(\frac{X_i}{X}\right)$ , then the country is classified as having a revealed comparative advantage in the industry  $j$ . The simplicity and highly intuitive nature of the Balassa Index explains its wide utilization in the literature on trade and international business. The formula uses  $\frac{X_i}{X}$  to “normalize”  $\frac{x_{ij}}{X_j}$ , proposing a threshold level of 1. Besides this dichotomous feature of dividing countries between those that have a revealed comparative advantage and those that do not have one, the *BI* can also be used as an

ordinal measure, allowing interpretations either among countries in a given industry or across industries in a given country. A *BI* score greater than 1 indicates that a country's domestic industry is relatively more specialized than the world industry. Thus, the *BI* can be used to compare the relative degree of industry specialization across countries. The index has a lower bound of  $BI_{ij} = 0$  in the extreme case where country  $i$  does not export any product from the industry  $j$  ( $x_{ij} = 0$ ); at the other extreme, it is infinite. Normally, the *BI* scores range from 0 to +1, but the effective upper bound can be infinite when  $X_i$  tends to 0, i.e. when the share of country  $i$  in total world exports is negligible. Given that  $X_i$  and  $X$  vary across time, the upper bound changes not only across countries but also across time.

### **Industry Growth (IG)**

Studies of industry competitiveness have tended to take a static rather than a dynamic or longitudinal perspective, and have provided little insight into globalization trends. As an assessment of the past, present and future export competitiveness of the alcoholic beverage industry is desired, an analysis of industry trends can shed light on the manner in which that industry as a whole is globalizing and at what pace (Makhija, et al., 1997). The framework includes industry growth because, over time a country may start to specialize more in some industries and less in others, thus changing its pattern of specialization. This also highlights the difference between dynamic and static industries. Some studies measure this change of pattern of specialization by using Shorrocks' (1978) mobility index. However, the mobility index does not provide sufficiently detailed information since it just ranks industries or sectors of a country according to export volume, groups them into quintiles, and calculates the net change between quintiles;

industries that do not have a net change between quintiles are considered to be static rather than dynamic. Other studies (Amador, Cabral, & Maria, 2006; Baldwin & Gu, 2004; Cooper, 2006) have used a more precise measure of changes in specialization by calculating the compound annual growth rate (CAGR) of exports over a certain period of time (World Bank, 2008). Positive export growth in a given industry and country, particularly growth that is higher than the average global industry growth rate, implies a greater degree of access to foreign markets for that industry. However, this measure suffers from the weakness that domestic production and consumption, which are important for global competitiveness (Porter, 1990), are omitted. Nevertheless, given the framework's focus on export competitiveness, this weakness is not fatal. Therefore, CAGR of exports as a measure of industry growth is used.

Where the world economy comprises  $N$  countries and  $m$  industries, for a given country  $i$  and industry  $j$ , the industry export growth rate ( $IG_{ij}$ ) takes into account the growth rate of the total trade value of exports of that industry and country ( $x_{ij}$ ) over a certain period of time  $n$ . Therefore, for a specific time  $t$  in country  $i$ , exports of industry  $j$  are expressed as  $x_{ij_t}$ ; exports from the previous period are expressed as  $x_{ij_{t-1}}$ . Therefore, the industry growth rate in terms of exports, derived from the well-known and widely used compound annual growth rate (CAGR) formula, for  $n$  periods for a given country  $i$  and industry  $j$  can be expressed as the following:

$$IG_{ij(t_0,t)} = \left( \frac{x_{ij_t}}{x_{ij_{t_0}}} \right)^{\frac{1}{t-t_0}} - 1$$

To summarize the model thus far, while industry specialization (IS) provides a good proxy for the competitive advantage of an industry in a particular country, the

export growth rate of that industry provides a good proxy for the industry growth rate (IG) over a given time period.

### **Relative Industry Size (W)**

The previous two measures allow a country  $i$  and its industry  $j$  to be positioned in a 2x2 matrix that permits a comparison of industry  $j$  in country  $i$  with the same industry in other countries, or with other industries in the same country. What has been omitted so far is the importance or weight of the industry in country  $i$  in relation to the size of the global industry. Industry size is recognized as a factor in competitiveness by various authors (Krugman & Hatsopoulos, 1987; Mandeng, 1991; Porter, 1990). Therefore, industry size needs to be taken into account in the framework in order to put the size of the domestic industry into the global context.

Relative industry size or weight ( $W$ ) is measured by the share of exports of a given industry  $j$  and country  $i$  ( $x_{ij}$ ) relative to the total global exports of that industry  $j$ , expressed as  $X_j$ . The domestic industry's relative share of the global industry is an outcome of global specialization and is indicative of export market share, and it is represented in the framework by the size of a circle indicating the relative size of each country's industry. The measurement variable is expressed as the exports of industry  $j$  for a certain country  $i$ , with  $x_{ij}$  relative to total world exports of the industry  $j$ ,  $X_j$ . The circle area can be expressed as  $\Pi r^2 = Y$  or  $\frac{1}{4}\Pi d^2$ ; for total global exports of industry  $j$ , the total area would be equal to 100%, and  $r$  or  $d$  can be freely chosen. However, the circle area for the country  $i$  and industry  $j$  is relative to this function. The total exports of industry  $j$  is given by  $X_j = \sum_{i=1}^N x_{ij}$  and, since  $\Pi r^2 = Y$ , the following formula for the

circle area of the industry  $j$  of country  $i$  can be expressed. In this case of a specific industry the formula would be:

$$\frac{\prod r^2}{X_j} x_{ij} = y_{ij} .$$

The relative industry size ( $W$ ) measure is used as a proxy for the relative importance of the industry in country  $i$ , compared to the global industry. In order to illustrate the usefulness of the framework, the following section presents an application of the framework in the context of the alcoholic beverage industry and sub-sectors over a 5-year period.

### **TYPES OF EXPORT COMPETITIVENESS**

The three variables in the model can be represented in a 2x2 matrix in which a country's industry can be plotted, using the Balassa Index as a proxy for industry specialization (IS), the CAGR of exports as a measure of industry growth (IG), and circles of various sizes for relative export market share. In the matrix, four different types of industry export competitiveness can be distinguished: (1) domestic static, (2) domestic dynamic, (3) global dynamic, and (4) global static industries, as shown in Figure 1.

Figure 1 about here

Dynamic industries are seen as growth oriented, whereas static industries have below-average industry growth rates. Global industries are specialized and export oriented, while domestic industries focus on the home market. Domestic static industries

neither grow fast nor are specialized. In contrast, global dynamic industries are the export champions of a nation, growing faster than other industries and having a high degree of specialization.

The matrix is useful in two ways: (1) it allows an *inter*-country analysis by comparing the domestic industry's competitiveness relative to that of the same industry in other countries; (2) it enables an *intra*-country analysis by assessing the degree of competitiveness of an industry and its sub-sectors with other industries and sub-sectors in the same country.

## **METHODOLOGY AND DATA COLLECTION**

To illustrate the use of the framework, data were obtained from the United Nations Conference on Trade and Development (UNCTAD) and the World Trade Organization (WTO) for the years 2001-2005 for the top thirty exporters of alcoholic beverages (see Appendix 1). The 5-year time period in the data allows for an analysis of changing global dynamics, especially important in the fast-changing emerging economies such as China, Ukraine and South Africa. During the time period of the investigation, many emerging economies have undertaken market reforms that have changed their industries' competitive position.

The data were classified using the international Harmonized Commodity Description and Coding Systems, generally referred to as the Harmonized System (HS). HS was designed to replace the local systems used by countries, allowing them to have a common classification system by which to track trade and apply tariffs. The system is used by more than 200 countries and economies as a basis for their customs tariffs and

for the collection of international trade statistics. Over 98 % of the merchandise in international trade is classified in terms of the HS, which classifies international trade into 99 sectors or industries; two of these (HS class 77 and 98) are reserved and are not used in the analyses, resulting in 97 specific industries. For this paper HS 22 is used, defined as “beverages, spirits and vinegar products<sup>1</sup>”. However in order to provide further insights and to understand better the export performance of the various sub-sectors, framework is applied to the 10 sub-sectors of the HS 22 group, as , shown in Table 1. Sub-industry categorization allows a more detailed analysis of the industry dynamics and comparisons among countries.

Table 1 about here

A list of each country and the total value of its exports in 2005, along with total exports as a share of world exports and its export growth rate, can be found in Appendix 1. The list consists of both developed and developing economies. The following section first provides an overview of international trade in terms of exports for the selected countries’ alcoholic beverage industry. Then the export competitiveness of the alcoholic beverage industry is assessed for each country by calculating the Balassa Index (BI), the industry’s export growth rate (IG) over the period 2001-2005, and the relative industry size (W). Finally, the results are discussed in detail.

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<sup>1</sup> We will take into account in our analysis only those products groups which are related to alcohol, marked in the table with (\*).

## RESULTS

### Export Trade Comparison

Table 2 provides a brief overview of the total value of exports in USD for each country for the years 2001-2005 as well as the corresponding compound annual growth rate (CAGR) for the alcoholic beverage industry (HS 22).

Table 2 about here

From Table 2 one can conclude that the worldwide alcoholic beverage industry grew at an average annual compound rate of 12.8% between the years 2001-2005, substantially higher than the worldwide export growth rate of 8%. Moreover, the nations with the highest export growth rate over the period analyzed are Bahamas, Ukraine, Poland, and Brazil with over 50%, followed by New Zealand (27.2%), Austria (24.3%), Singapore (21%) and South Africa (20%). However, in terms of absolute value for 2005 in USD, the five major players in exporting alcoholic beverages are France (\$11.7 bn), UK (\$6.5 bn), Italy (\$5.4 bn), Germany (\$3.7 bn), and the Netherlands (\$2.8 bn). Europe still dominates in alcoholic beverage exports.

Although it is important to understand international trade data in terms of absolute and relative values at the country level, doing so is insufficient for assessing industry export competitiveness. To achieve this, the framework is applied. In particular, we are seeking to determine what the trends are in industry specialization and export performance and to what extent the national alcoholic beverages industries and their underlying sub-sectors are competitive in their export performance.



## Industry Export Competitiveness

As discussed previously, combining the industry specialization measure (*IS*), calculated by the revealed comparative advantage or Balassa Index, with the industry growth rate measure (*IG*) generates a 2x2 matrix that permits an assessment of industry export competitiveness for the alcoholic beverages industry. Figure 2 provides an overview of the alcoholic beverage industry for the selected countries and its degree of competitiveness in terms of industry specialization, growth and size. The framework allows cross-country analysis of the alcoholic beverage industry, comparing various countries' export competitiveness, and permits an analysis of changes in the industry over time using longitudinal data.

Figure 2 about here

While France, UK, Italy, Germany, and Netherlands dominate the alcoholic beverages industry in terms of volume, the framework provides insights into their future competitiveness, not easily observed in Table 2. Specifically, while Germany has an above average growth in exports, it appears to be less specialized in alcoholic beverages than the other leading four countries. Germany's alcoholic beverage industry, however, is trending towards more specialization, as noted by the arrow in figure 2. In contrast to Germany, France exhibits a high level of specialization in the industry and a large market share, but below average growth rates for its exports. The Netherlands, Italy and UK fall between Germany and France in terms of industry specialization.

Discussions of the global competitiveness of exports in today's literature often revert back to the role of emerging markets and, in particular, to China (Alon and

McIntyre, 2008). In most industries, China is seen as the new threat and the emerging industrial power. As can be seen from Figure 2, this is not the case for the alcoholic beverages industry. Both Mainland China and Hong Kong have a small market share in the industry's exports, a below average growth rate, and a low and decreasing level of specialization – indicating that China is not an emerging threat in this industry. In contrast to China, the emerging economies of Brazil, Ukraine, and Argentina exhibit both above average growth rates in the industry and growing specialization.

For each of the four quadrants, the number of countries, their average specialization (IS), average export growth rate (IG) and export market share (W) are illustrated in Figure 3. A large minority (43%) of the top 30 major exporting countries of the alcoholic beverages industry are global and dynamic. Overall, 60% of our sampled countries are dynamic, with an average growth rate of around 26-27%, a rate of growth that substantially exceeds the world average export growth of 8% and the industry's growth rate of 12.8%. Sixty three percent of the sampled countries are highly specialized, with a Balassa index ranging between 2.92 and 7.28.

Analysis also shows that of the seven emerging economies in the sample, the majority are in the global dynamic quadrant (Ukraine, Brazil, South Africa, Moldova, Argentina). China is domestic static and Chile is global static. A country's level of economic development, therefore, is not by itself an accurate indication of the industry's export dynamics in that country, even if the country as a whole is globalizing at a rapid pace, as in the case of China.

Figure 3 about here

### **Sub-Industry Export Competitiveness**

Having examined the aggregate data by country for the overall alcoholic beverages industry, we now turn to an intra-industry analysis that focuses on each product group within the industry, excluding three product groups of non-alcoholic beverages (HS 2201, 2202, 2209). The majority (82%) of the total trade in the industry is in fact in alcoholic beverages. Analyses are conducted at the four-digit industry classification level since a higher level of disaggregation permits a finer-grained analysis and gives rise to a better understanding of the industry structure. Figure 4 illustrates the export competitiveness of the 30 selected countries in each of the product groups (HS 2203 Beer; 2204 Wine; 2205 Vermouth & other flavored grape wine; 2206 Fermented beverages; 2207 Ethyl alcohol & other spirits; 2208 Spirits, liqueurs, other spirit beverages). This level of data aggregation reveals patterns unobservable from the aggregated industry data described above.

Figure 4 about here

Vrontis (1998) suggested that from the mid-1980s to the mid-1990s, breweries from the UK, Germany, Belgium and Ireland have experienced stagnating sales because of changing consumer preferences towards low alcohol beers, wines, and soft drinks and because the traditionally wine-drinking Southern European states are posing additional competition. The analysis in this paper suggests that beer exports (HS 2203) are dominated by the Netherlands, Mexico, and Germany, which have the largest share of the world export market. Denmark, Ireland, Portugal, Czech Republic and Ukraine, among others, are quickly gaining ground in international markets, with a relatively high level of

specialization ( $>2.0$ ) and greater than industry average growth in exports. South Africa and Australia are located in the domestic static category, indicating that they do not have a relatively high level of specialization or export growth in beer, in contrast to their wine industries, as discussed next.

According to some recent studies of the wine sector (Vrontis, 2008; Vrontis and Papsolomou, 2007), France, Italy and Spain account for 62% of world wine production, which compares favorably with the still small production capabilities of the US (6%), Australia (2%), and Chile (1%). Only 18% of total wine production is exported. France and Italy dominate 50% of total wine exports. On the other hand, American, Chilean and Australian wineries are showing potential for growth, and lesser known brands from smaller countries, such as Cyprus, are also gaining some grounds in select market niches.

For wine products (HS 2204), France clearly has the largest export market share, as noted by the size of the circle on the graph. However, some of the major wine exporting countries have a higher level of specialization (e.g., Chile), a higher export growth rate (e.g., New Zealand, South Africa, Argentina, Spain and Italy) or both (Portugal and Australia). This means that French leadership in wine exports might decline over time, with a relative reduction in its overall export market share. Portugal and Australia, and to some extent New Zealand and South Africa, are emerging competitors in the field.

In Vermouth and other grape wine exports (HS 2205), Italy has the upper hand with both a high level of specialization and above average level of export growth. While the level of specialization is high for Moldova and Spain, their growth rate in exports lags

the industry. For this product category, most of the sampled countries cluster on the left, not showing strong relative specialization. Portugal, Austria, and South Africa, however, are growing their exports in this category.

In the fermented beverage product category (HS 2206), Ireland emerges as the leader with a very high level of specialization and export growth rate, resulting in a relatively high market share. France, Sweden and the US are rapidly growing their exports, and Moldova has a high level of specialization.

For ethyl alcohol and other spirits product category (HS 2207), Brazil is the clear winner with very high levels of specialization, export growth rate, and export market share, followed by South Africa and Ukraine. For spirits and liqueurs (HS 2208), the UK leads in terms of specialization and export market share, but lags in terms of industry export growth rate. Only France, Sweden and Singapore fall within the global dynamic category, showing potential for sustainable export growth. Like the UK, Ireland, Mexico, Spain and the US have some specialization, but they lag in terms of export growth in this sub-sector.

The results also show various outliers. For HS 2205, Vermouth and other grape wine, Mexico shows a -100% growth rate, suggesting that Mexican producers dropped out of the export market for this product category. Similarly, for category HS 2207, Moldova shows the same result. For HS 2208, spirits and liqueurs, Bahamas and Moldova are positive outliers with specialization rates in excess of 60% and 20%, respectively. Ukraine's growth rate of over 150% is also an outlier for the category, but since its relative export market share is so small (1.5% of world market share), such high growth rates are not significant in absolute terms. Nevertheless, a more detailed analysis

might indicate what the target markets are for Ukraine's exports in this sub-sector and alert its competitors there and elsewhere of the burgeoning threat.

## **DISCUSSION AND FUTURE RESEARCH**

As mentioned earlier, although it is crucial for understanding competitiveness at the firm level, industry competitiveness has been examined mainly at a country-level analysis, even though scholars have exhorted the use of analyses at the industry level (Porter, 1986). The industry export competitiveness framework proposed here seeks to do that through the use of three key measurements: (1) degree of industry specialization, (2) industry growth rate, and (3) relative market share. These variables were plotted in a 2x2 matrix to yield four categories of export competitiveness and to show relative export market share. The framework is then illustrated with empirical data from the alcoholic beverages industry and its sub-sectors for the 30 major exporting countries for the period 2001-2005. The analyses and results provide interesting insights about the changing nature of the alcoholic beverages industry.

First of all, the results indicate that the export environment for the alcohol beverages industry is dynamic and changing. The aggregated data in Figure 2 illustrate that eighteen of the thirty top exporters had experienced above-average growth in their exports over the 5-year period and, with the exception of the Czech Republic, all of them increased their degree of industry specialization during this time, indicating that the export market has been of growing importance to their respective economy. Thirteen of these exporters fall into the "Global Dynamic" category, suggesting that their higher degree of specialization and above-average export growth have made them more competitive in the global alcoholic beverages market. A further five fall into the "Domestic Dynamic" category, but the data indicate that, in all cases, their degree of

industry specialization is increasing such that, if it continues to do so, they should soon become more competitive in the export market and enter the “Global Dynamic” category. Indeed, the aggregated data in Figure 2 reveal an interesting pattern of export competitiveness that suggests a sequential path, with domestic industries starting out in the Domestic Static category and moving through Domestic Dynamic, to Global Dynamic, to Global Static.

It is interesting to note that the world’s top two exporters of alcoholic beverages, France and the UK, fall into the “Domestic Dynamic” category. Recall that country industries in this category have a high degree of industry specialization but a lower than average export growth rate. However, this category should not be interpreted as meaning that these countries’ industries are less competitive in the long run. Their export growth rate may be lower for a number of reasons, including a strong domestic currency that makes exports more expensive in the short term, growing domestic demand, and a shortage of production capacity. The latter is especially important in the wine industry, since it typically takes newly planted vines up to ten years to mature. Other issues, such as a bad grape harvest, can also affect export performance in the short-term.

While the aggregated data in Figure 2 provide an overall view of the export competitiveness in the alcohol beverages industry, disaggregating the data into sub-sectors of the industry can yield a clear and more accurate picture of which countries are strong competitors in which sectors. For example, Italy ranks as the world’s number 3 exporter overall and in Figure 2 it is co-located with Spain in the “Domestic Static” category, with a high degree of industry specialization and a growth rate just below the industry average. This might suggest that Italy’s closest competitor is Spain, and that

South Africa, Portugal and Australia are all out-performing Italy in terms of export competitiveness. However, an analysis of the sub-sectors of the industry shows that Italy is almost in a category of its own in the Vermouth & other grape wine sector (HS 2205), with a very large share of the world market, a high degree of industry specialization, and an above-average growth rate. Clearly, Italy is highly competitive in the world export market in this sector.

Although the framework is presented here for the global alcoholic beverages industry, it is flexible enough to be applied to a wide range of industries and industry sub-sectors. The data used may be from industry leaders, as was done here, or from a selected sub-sample of countries or regions within an industry. For example, an analysis could be done focusing on the wine industry in the European Union, with red, white, rosé, and sparkling wines as the sub-sectors for analysis. Alternatively, the framework could be applied to cheese manufacturers in Western Europe, or to a comparative analysis of industries within a single country. However, the framework does have a number of limitations.

First of all, the four categories presented in the framework are primarily descriptive and thus their predictive value is limited. The use of longitudinal data helps to mitigate this problem, but since the longitudinal data comprise only export market growth rates, these data too should be used with care. For example, an average or near-average growth rate achieved by a world export market leader, such as France in the wines sub-sector in this analysis, might be much more significant for competitiveness than a higher rate of export growth achieved by a much smaller player such as New Zealand or South Africa. Also, the export growth rate between two time periods fails to



capture variations in export volume on a year-to-year basis, which might have implications for export competitiveness. Nevertheless, the framework can be helpful in identifying potential future competitors.

Second, the data applied in the framework relate to exports only, so they do not reflect the size, structure or competitiveness of a country's domestic market, which can influence export competitiveness. However, it can be argued that since the focus of this study is export competitiveness, the size and structure of the domestic market are not relevant issues: whether or not the domestic industry provides a strong foundation for export competitiveness should be reflected in export performance.

Third, by confining the analysis to the industry level, activity at the firm level may have been overlooked. In the beer sub-sector in particular, competitive moves by industry giants such as SAB-Miller and Anheuser Busch can have a major impact on export competitiveness within the sub-sector and even within the industry as a whole. In the wine industry, as another example, Constellation Brands has developed an impressive portfolio of products ranging from table wines to luxury wines, vertically- and horizontally-integrated wine production networks, and channels of distribution around the world (Vrontis and Papasolomou, 2007).

Future research may also explore the possibility of combining this model with other models of competition and/or in conjunction with the analysis of specific brands and/or countries. For example, Vrontis (1998) and Vrontis and Vignali (1999) examined the beer markets in Europe and the impact of specific brands on internationalization. Relative to this article and their examinations, some questions emerge: what is the role of the multinational company and the global brand in the industry competitiveness at the

national level? How important is the industry concentration at the national level to the industry's global competitiveness. In Denmark's and Holland's beer industry, for example, one company accounts for 80% and 70%, respectively, of the national market share. Clearly there, the international strategy of the near monopolist will impact the country's export competitiveness. Linking the industry analysis described in this article with a more fine-grained outlook of specific firms or countries can be instructive. Future studies may wish to examine the impact of the multinational on emerging trends in global competitiveness. Furthermore, how is the multinational impacted by changes in national export competitiveness of an industry?

A fourth limitation is the use of the Balassa index as a proxy for industry specialization. While it has been so used by past studies, Hinloopen and Marrewijk (2004) suggest that a similar value of the Balassa index may imply a different level of comparative advantage for different countries, and they question the use of the index for inter-country comparisons. This may be especially pertinent where the Balassa index is similar for two or more countries, or where the value is close to the cut-off point; however, where the index value is significantly higher or significantly lower than the selected cut-off point (1.0 in this study), its *relative* value should reflect reasonably accurately the presence or absence of a comparative advantage in the industry. For example, for the sub-sector of beer in this study (HS 2203), nine countries had a *BI* of 2.0 or greater, and we are confident that this represents not just a statistical difference in comparative advantage, but a real difference. Nevertheless, caution is called for in interpreting the *BI* when used for inter-country comparisons.

Notwithstanding these limitations, the framework can be of value in identifying the relative strength of national industries in a globally competitive export market. As mentioned earlier but not illustrated in this study, it can also be used to assess the relative competitiveness of industries and industry sub-sectors within a single country, allowing policymakers, government officials, industry associations, business strategists, and company executives to identify those which are competitive in export markets. In addition, the four categories illustrated in Figure 1 are conceptually appealing and suggest a pattern of development in export competitiveness that merits further investigation. Suggestions for future research include: Do national industries progress sequentially through the four stages, or does the globalization of markets allow some national industries to move directly from the Domestic Static to the Global Dynamic category? What strategies are appropriate for national industries that move from the Global Dynamic to the Global Static category? Do firm strategies vary according to the position of their national industry in the matrix?

In conclusion, the industry is the location where firms win or lose competitive advantage. Since industry competitiveness influences the competitiveness of both firms and countries, a convenient tool for assessing industry competitiveness in exports is beneficial to a wide range of potential users. The framework presented here can be applied to multiple industries and industry sub-sectors, and can be used to assess export competitiveness within an industry in a single country, across industries in a single country, or across countries within a single industry.

## Appendix 1: Major Exporting Countries for Alcoholic Beverages

<b>Rank</b>	<b>Country</b>	<b>Exports in value (millions)</b>	<b>Exports as a share of world exports (%)</b>	<b>Growth of exports in value (% p.a.)</b>
0	World	59,688.5	100.00	13
1	France	11,650.3	19.5	11
2	United Kingdom	6,525.3	10.9	8
3	Italy	5,418.1	9.1	13
4	Germany	3,738.4	6.3	18
5	Netherlands	2,815.1	4.7	10
6	Spain	2,759.3	4.6	12
7	Mexico	2,441.1	4.1	10
8	United States of America	2,286.2	3.8	6
9	Australia	2,215.1	3.7	19
10	Austria	1,841.2	3.1	24
11	Belgium	1,678.0	2.8	11
12	Ireland	1,271.8	2.1	14
13	Canada	938.7	1.6	-1
14	Chile	894.1	1.5	8
15	Portugal	865.1	1.4	12
16	Brazil	833.8	1.4	54
17	South Africa	826.5	1.4	20
18	Singapore	774.7	1.3	21
19	Sweden	721.2	1.2	14
20	China	718.4	1.2	6
21	Denmark	642.4	1.1	19
22	New Zealand	431.2	0.7	27
23	Ukraine	419.2	0.7	55
24	Argentina	361.9	0.6	15
25	Poland	321.3	0.5	53
26	Hong Kong , SAR China	318.7	0.5	0
27	Moldova, Republic of	314.5	0.5	16
28	Czech Republic	304.3	0.5	19
29	Bahamas	257.6	0.4	-3
30	Korea, Republic of	253.9	0.4	10

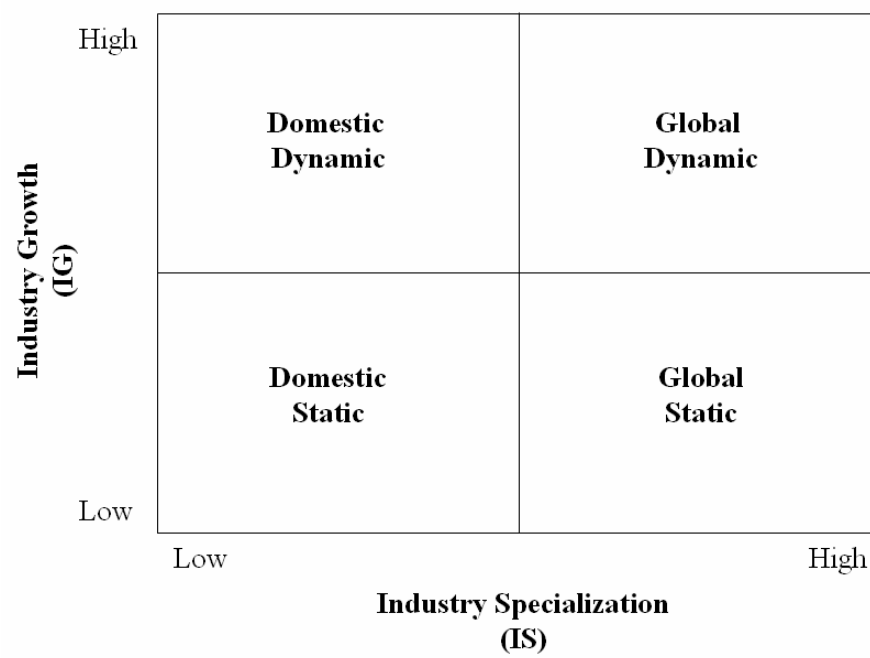


Figure 5: Types of Export Competitiveness

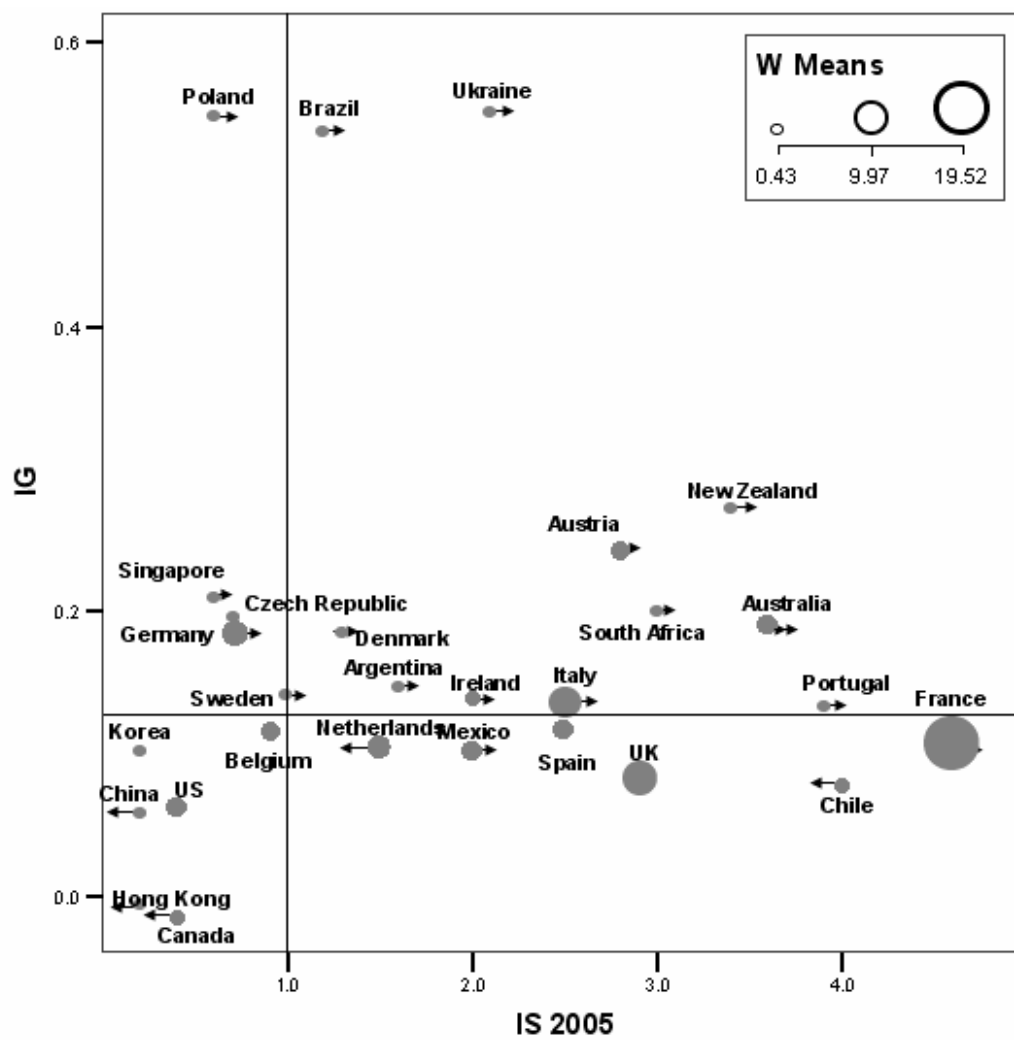
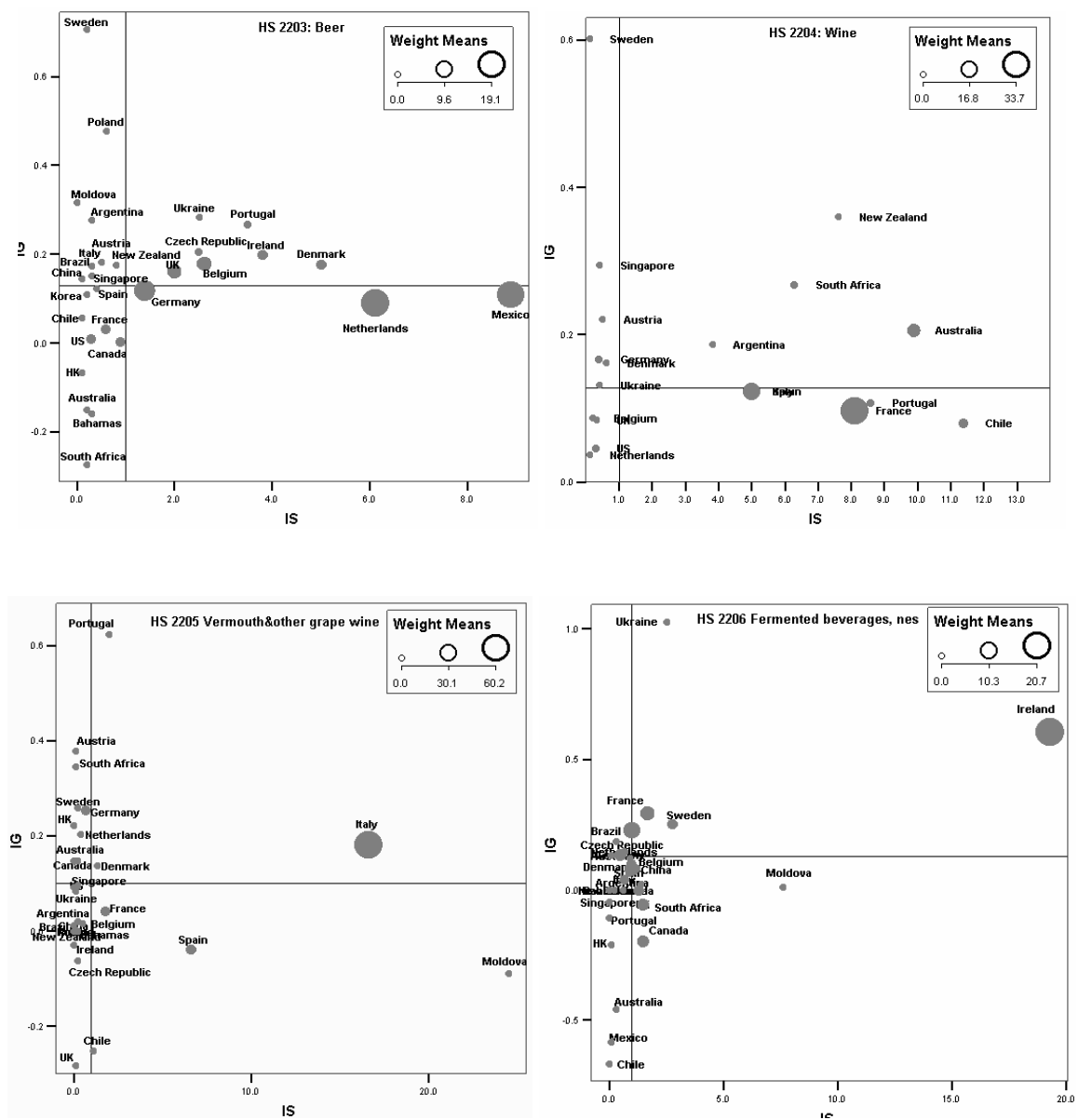


Figure 6: Industry Export Competitiveness

Industry Growth (IG)	High	<b>Domestic Dynamic</b> 17% (5 countries) IS: 0.72 IG: 26% Size: 1.96% (Singapore, Poland, Germany, Czech Republic, Sweden)	<b>Global Dynamic</b> 43% (13 countries) IS: 7.28 IG: 27% Size: 2.02% (Bahamas, Ukraine, Brazil, New Zealand, Austria, S. Africa, Australia, Denmark, Moldova, Argentina, Ireland, Italy, Portugal)
	Low	<b>Domestic Static</b> 20% (6 countries) IS: 0.38 IG: 5% Size: 1.73% (Korea, Hong Kong, China, US, Canada, Belgium)	<b>Global Static</b> 20% (6 countries) IS: 2.92 IG: 10% Size: 7.56% (Chile, UK, Mexico, Netherlands, France, Spain)
		Low	High
		Industry Specialization (IS)	

Figure 7: Types of Export Competitiveness: Aggregated Data





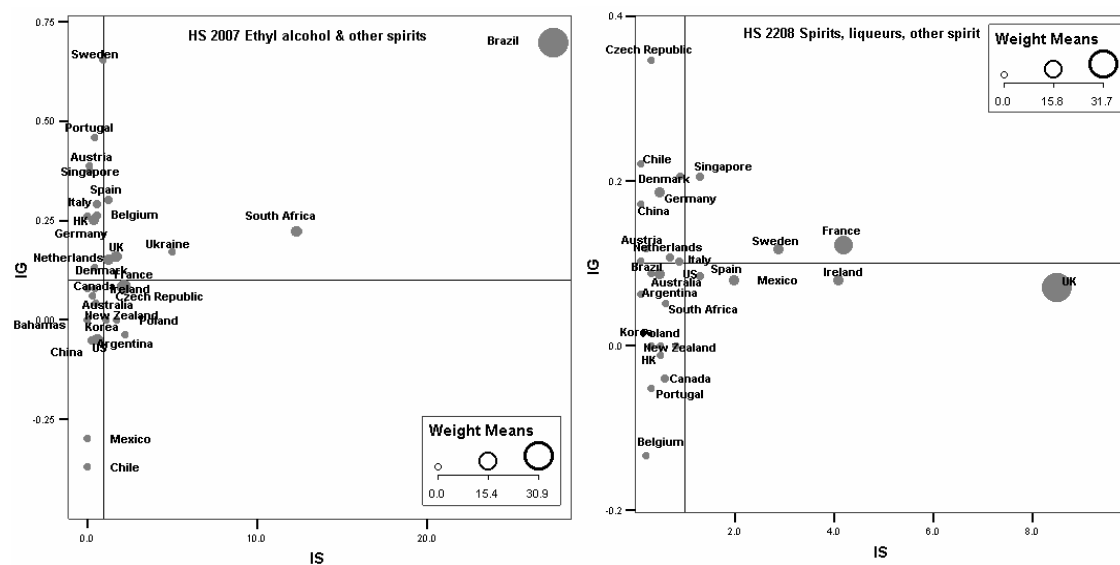


Figure 8: Sub-Sector Export Competitiveness

<b>Industry</b>	<b>Exports in million USD (2005)</b>
2200 All industries in sector 22	59,688.5
2204 Wine of fresh grapes*	20,664.5
2208 Spirits, liqueurs, other spirit beverages*	16,236.0
2202 Non-alcoholic beverages (excl. water)	8,423.0
2203 Beer*	8,112.0
2207 Ethyl alcohol & other spirits*	2,478.7
2201 Mineral & aerated waters	2,299.7
2206 Fermented beverages, nes*	501.8
2205 Vermouth & other grape wine flavoured*	402.7
2209 Vinegar and substitutes for vinegar	312.9

Table 3: HS 22 Sub-sectors

<b>Country</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>CAGR</b>
Argentina	0.2	0.2	0.2	0.3	0.4	14.7%
Australia	1.1	1.4	1.7	2.1	2.2	19.1%
Austria	0.8	0.8	1.2	1.6	1.8	24.3%
Bahamas	0.0	0.2	0.3	0.3	0.3	59.6%
Belgium	1.1	1.1	1.3	1.6	1.7	11.4%
Brazil	0.1	0.2	0.2	0.5	0.8	53.7%
Canada	1.0	0.9	1.0	1.0	0.9	-1.5%
Chile	0.7	0.6	0.7	0.9	0.9	7.8%
China	0.6	0.6	0.6	0.7	0.7	5.9%
Czech Republic	0.1	0.2	0.2	0.2	0.3	19.6%
Denmark	0.3	0.4	0.6	0.6	0.6	18.5%
France	7.8	8.8	10.6	11.3	11.7	10.6%
Germany	1.9	2.2	2.9	3.6	3.7	18.4%
Hong Kong	0.3	0.3	0.2	0.3	0.3	-0.6%
Ireland	0.8	0.8	1.1	1.2	1.3	13.9%
Italy	3.3	3.8	4.4	5.2	5.4	13.6%
Korea	0.2	0.2	0.2	0.3	0.3	10.1%
Mexico	1.7	1.9	2.0	2.1	2.4	10.1%
Moldova	0.2	0.2	0.2	0.3	0.3	15.8%
Netherlands	1.9	2.2	2.6	2.7	2.8	10.4%
New Zealand	0.2	0.2	0.2	0.3	0.4	27.2%
Poland	0.1	0.1	0.1	0.2	0.3	54.7%
Portugal	0.5	0.6	0.8	0.8	0.9	13.3%
Singapore	0.4	0.4	0.5	0.7	0.8	21.0%
South Africa	0.4	0.5	0.6	0.7	0.8	20.0%
Spain	1.8	1.9	2.4	2.7	2.8	11.6%
Sweden	0.4	0.5	0.6	0.7	0.7	14.2%
Ukraine	0.1	0.1	0.2	0.3	0.4	55.0%
United Kingdom	4.8	5.1	5.8	6.3	6.5	8.2%
United States	1.8	1.8	2.0	2.3	2.3	6.3%
<b>World</b>	<b>36.8</b>	<b>41.0</b>	<b>49.1</b>	<b>55.7</b>	<b>59.7</b>	<b>12.8%</b>

Table 4: Export value 2001-2005 (billion USD)

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